UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,978	12/10/2001	Eisaku Katoh	KON-1692	6893

20311 7590 02/04/2003

MUSERLIAN AND LUCAS AND MERCANTI, LLP
600 THIRD AVENUE
NEW YORK, NY 10016

EXAMINER
SHEWAREGED, BETELHEM

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 02/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/015,978	Applicant(s) KATOH ET AL.	
	Examiner Betelhem Shewareged	Art Unit 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

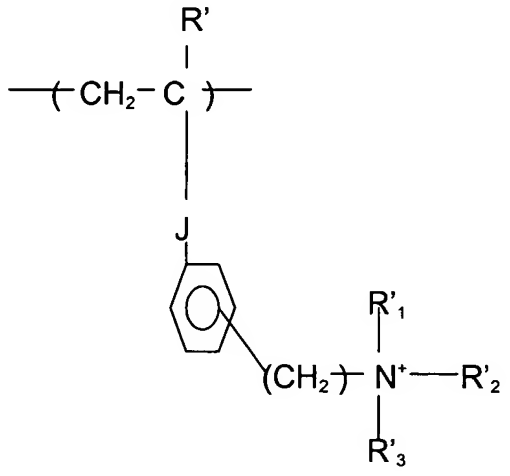
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2 and 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohbayashi et al. (EP 1 034 940) in view of Kawasaki et al. (US 6,338,891).

Ohbayashi discloses an ink jet recording sheet having a support and a porous ink absorptive layer on the support (abstract). The support may be a water non-absorptive support (paragraph [0027]). The ink absorptive layer comprises a polyvinyl alcohol (paragraph [0073]), a polyvalent metal salt such as Aluminum chloride (paragraph [0115] and paragraph [0172]), and a cationic polymer represented by general formula (2) (paragraph [0044]). The average molecular weight of the cationic polymer ranges from 2,000 to 100,000 (paragraph [0057]). The ink absorptive layer comprises pH adjusting agents such as phosphoric acid, acetic acid and citric acid (paragraph [0100]).

With respect to claim 7, the ink absorptive layer further contains a hardener such as boric acid and salt thereof (paragraph [0094]), in an amount of 5-500mg, preferably 10-300mg (paragraph [0096]). The claimed content of the boric acid or salt thereof represents the content of the boric acid or salt thereof at line 5, page 29 of applicant's specification, which reads on the content of the Ohbayashi reference.

With respect to claim 9, the ink absorptive layer may comprise two or more layer, and the layers may be the same or different (paragraph [0098]). In other words, each layer may contain the claimed cationic polymer.



Formula (2)

Where R' is hydrogen atom or an alkyl group; R'_1, R'_2 and R'_3 are alkyl; J is a divalent organic group; and X^- is anion.

Ohbayashi fails to disclose a surface pH value of the ink absorptive layer.

Kawasaki teaches an ink jet recording sheet having a support and an ink receiving layer on the support (abstract). The ink receiving layer comprise pH adjustors such as acetic acid, citric acid and phosphoric acid in order to provide an ink receiving layer having a surface pH value of 4.0-5.4 (col. 8, line 63 thru col. 9, line 9).

Ohbayashi and Kawasaki are analogous art because they are from the same field of endeavor that is the ink jet recording sheet art. At the time of the invention, it would have been obvious to a person of ordinary to adjust the surface pH value of the

Ohbayashi ink absorptive layer to 4.0 to 5.4 as the surface pH value of Kawasaki so as to provide an ink jet recorded image which shows no change of color in printed portions and no yellowing of the unprinted portions. (See Kawasaki at col. 3, lines 49-53 and col. 9, lines 23-31). Since, so long as the surface pH value is kept between 4.0 and 5.4 no color change and no yellowing can be obtained, the surface pH value would be the same before and after ink jet printing.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohbayashi et al. (EP 1 034 940 A1) in view of Kawasaki et al. (US 6,338,891) and Anderson et al. (US 6,096,469).

Ohbayashi discloses an ink jet recording sheet having a support and an ink absorptive layer on the support (abstract). The support is a water non-absorptive support (paragraph [0027]). The ink absorptive layer comprises a polyvinyl alcohol (paragraph [0073]), a polyvalent metal salt (paragraph [0115]), and a cationic polymer (paragraph [0030]). The ink absorptive layer comprises pH adjusting agents such as phosphoric acid, acetic acid and citric acid (paragraph [0100]).

Ohbayashi fails to disclose a surface pH value of the ink absorptive layer.

Kawasaki teaches an ink jet recording sheet having a support and an ink receiving layer on the support (abstract). The ink receiving layer comprise pH adjustors such as acetic acid, citric acid and phosphoric acid in order to provide an ink receiving layer having a surface pH value of 4.0-5.4 (col. 8, line 63 thru col. 9, line 9).

Ohbayashi and Kawasaki are analogous art because they are from the same field of endeavor that is the ink jet recording sheet art. At the time of the invention, it would have been obvious to a person of ordinary to adjust the surface pH value of the Ohbayashi ink absorptive layer to 4.0 to 5.4 as the surface pH value of Kawasaki so as to provide an ink jet recorded image which shows no change of color in printed portions and no yellowing of the unprinted portions. (See Kawasaki at col. 3, lines 49-53 and col. 9, lines 23-31). Since, so long as the surface pH value is kept between 4.0 and 5.4 no color change and no yellowing can be obtained, the surface pH value would be the same before and after ink jet printing.

Ohbayashi fails to disclose zirconium compound as the polyvalent metal salt in the ink absorptive layer.

Anderson teaches an ink receptor media for ink jet printing, comprising a substrate and an ink receptor on the substrate (col. 4, line 20 and title). The ink receptor comprises multivalent metal salts such as zirconium nitrate (col. 10, line 10).

Ohbayashi and Anderson are analogous art because they are from the same field of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the zirconium compound of Anderson with the invention of Ohbayashi in order to rapidly destabilize dispersants surrounding the pigment particles in the ink, whereby the pigment particles coagulate or flocculate as the remainder of the ink fluid continues along the surfaces of the ink receptor. (See Anderson at col. 9, line 65).

4. Claims 1 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw-Klein et al. (US 6,110,601) in view of Kawasaki et al. (US 6,338,891).

Shaw-Klein discloses an ink jet recording element comprising a water impervious support, a water absorbing layer on the support, and an image recording layer on the water absorbing layer (abstract). The image recording layer comprises a polyvinyl alcohol (col. 3, line 41), a polymeric cationic mordant (col. 3, line 56), a multivalent metal salt such as aluminum chloride (col. 4, line 30), and additives such as pH controllers (col. 5, line 6). The image recording layer is porous because the reference teaches that the role of the water absorbing layer is to absorb ink solvents that pass through the image recording layer (col. 3, lines 22-27), and the image recording layer contains porous pigments (col. 3, lines 30-36). The image recording layer is equivalent to the claimed porous ink absorptive layer. Shaw-Klein fails to disclose a surface pH value of the image recording layer.

Kawasaki teaches an ink jet recording sheet having a support and an ink receiving layer on the support (abstract). The ink receiving layer comprise pH adjustors such as acetic acid, citric acid and phosphoric acid in order to provide an ink receiving layer having a surface pH value of 4.0-5.4 (col. 8, line 63 thru col. 9, line 9).

Shaw-Klein and Kawasaki are analogous art because they are from the same field of endeavor that is the ink jet recording sheet art. At the time of the invention, it would have been obvious to a person of ordinary to adjust the surface pH value of the Shaw-Klein image recording layer to 4.0 to 5.4 as the surface pH value of Kawasaki so as to provide an ink jet recorded image which shows no change of color in printed

portions and no yellowing of the unprinted portions. (See Kawasaki at col. 3, lines 49-53 and col. 9, lines 23-31). Since, so long as the surface pH value is kept between 4.0 and 5.4 no color change and no yellowing can be obtained, the surface pH value would be the same before and after ink jet printing.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw-Klein et al. (US 6,110,601) in view of Kawasaki et al. (US 6,338,891) and Anderson et al. (US 6,096,469).

Shaw-Klein discloses an ink jet recording element comprising a water impervious support, a water absorbing layer on the support, and an image recording layer on the water absorbing layer (abstract). The image recording layer is equivalent to the claimed ink absorptive layer. The image recording layer comprises a polyvinyl alcohol (col. 3, line 41), a polymeric cationic mordant (col. 3, line 56), a multivalent metal salt such as aluminum chloride (col. 4, line 30), and additives such as pH controllers (col. 5, line 6). Shaw-Klein fails to disclose a surface pH value of the image recording layer.

Kawasaki teaches an ink jet recording sheet having a support and an ink receiving layer on the support (abstract). The ink receiving layer comprise pH adjustors such as acetic acid, citric acid and phosphoric acid in order to provide an ink receiving layer having a surface pH value of 4.0-5.4 (col. 8, line 63 thru col. 9, line 9).

Shaw-Klein and Kawasaki are analogous art because they are from the same field of endeavor that is the ink jet recording sheet art. At the time of the invention, it would have been obvious to a person of ordinary to adjust the surface pH value of the

Shaw-Klein image recording layer to 4.0 to 5.4 as the surface pH value of Kawasaki so as to provide an ink jet recorded image which shows no change of color in printed portions and no yellowing of the unprinted portions. (See Kawasaki at col. 3, lines 49-53 and col. 9, lines 23-31). Since, so long as the surface pH value is kept between 4.0 and 5.4 no color change and no yellowing can be obtained, the surface pH value would be the same before and after ink jet printing.

Shaw-Klein fails to disclose zirconium compound as the multivalent metal salt in the image recording layer.

Anderson teaches an ink receptor media for ink jet printing, comprising a substrate and an ink receptor on the substrate (col. 4, line 20 and title). The ink receptor comprises multivalent metal salts such as zirconium nitrate (col. 10, line 10).

Shaw-Klein and Anderson are analogous art because they are from the same field of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the zirconium compound of Anderson with the invention of Shaw-Klein in order to rapidly destabilize dispersants surrounding the pigment particles in the ink, whereby the pigment particles coagulate or flocculate as the remainder of the ink fluid continues along the surfaces of the ink receptor. (See Anderson at col. 9, line 65).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betelhem Shewareged whose telephone number is 703-305-0389. The examiner can normally be reached on Mon.-Thur. 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H Kelly can be reached on 703-308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

BS
January 27, 2003.